N. A. C. A. BULLETIN

Vol. XXVI, No. 1 September 1, 1944

IN TWO SECTIONS

Section I

IN THIS ISSUE

Normal Capacity and Its Uses, by L. W. Downie..... 3

Case History of Twenty-seven Government Audits, by Clark L. Simpson..... 12

This Bulletin is published semi-monthly by the National Association of Cost Accountants, 385 Madison Ave., New York 17, N. Y. Subscription price, $10.00 per year. Entered at the Post Office, New York, N. Y., as second-class matter August 28, 1925, under the Act of March 3, 1879.

EDITORIAL DEPARTMENT NOTE

Industrial accountants are going to be busy in the transition and postwar period. In addition to the problems connected with contract cancellation and reconversion, there will be the need for the establishment of sound cost accounting for the highly competitive period ahead. It is not too early to begin to give thought to such matters as methods of absorbing overhead in costs and the establishment of a postwar normal capacity as a basis for costing, inventory valuation, and pricing decisions. The first article in this issue of the *Bulletin* provides a timely discussion of this important cost fundamental.

The author of this article, L. W. Downie, has been associated with the Kelsey-Hayes Wheel Co. for over 20 years and has served in various capacities in their American, English, and Canadian plants. At present he is President and General Manager of the Kelsey Wheel Co., Ltd., Windsor, Canada. Mr. Downie has been active in N. A. C. A. for the past 15 years. He served as a Director of the Detroit Chapter for several years and has addressed both National Conferences and chapter meetings.

Our second article throws the spotlight on the types of adjustments which government auditors find it necessary to make in the claims filed by contractors. The author has indicated the pitfalls to be avoided by summarizing the types of adjustment made by the Audit Section of the Cincinnati Ordnance District in connection with 27 claims by contractors.

Clark L. Simpson, the author of this article, is Chief of the Audit Section of the Cincinnati Ordnance District. A. C. P. A. of Ohio, he has been connected with the Federal Government since 1938, first as a Finance Officer, and since 1941, in his present position. Prior to entering government service, Mr. Simpson had his own accounting practice and held accounting positions in the City of Cleveland and in Cuyahoga County, Ohio. Mr. Simpson had contributed several papers on accounting subjects to the Journal of Accountancy and other accounting publications. He is a member of the Cincinnati Chapter.

Articles published in the *Bulletin* present many different viewpoints. In publishing them the Association is not sponsoring the view expressed, but is endeavoring to provide for its members material which will be helpful and stimulating. Constructive comments are welcomed and will be published in the Forum Section of the *Bulletin*.

COPYRIGHTED BY THE
NATIONAL ASSOCIATION OF
COST ACCOUNTANTS

SEPTEMBER 1, 1944

NORMAL CAPACITY AND ITS USES

By L. W. Downie, President and General Manager, Kelsey Wheel Co., Ltd., Windsor, Canada.

ONE of the primary functions of a cost accountant is to establish reasonably accurate costs, not only during the current period under review, but also into the future with the objective of enabling management to make proper decisions respecting future operations. Despite all current problems, this fundamental problem should never be lost sight of.

There has been a great deal of discussion recently concerning wartime accounting problems, of which there are a wide variety. Sometimes it would appear that in the swirl of wartime activity, with its multiplicity of forms, reports, audits, renegotiations, and whatnots, and with the general inflationary thinking which accompanies such a situation, many of us are prone to lose sight of certain fundamentals. Therefore, we should pause occasionally to analyze clearly anew the fundamental principles underlying good management.

Many people believe this war will end with a world worn out, its resources depleted, its capital dissipated, and the general world standard of living depressed. Out of this will arise, if the past is any indication, a struggle for existence, a struggle for business, and a struggle for rehabilitation that may excell in bitterness our most severe periods of competition. If these prophecies become true, then there is every reason why we should brush up on our fundamentals. If they do not become true, no harm will be done and the mental exercise will be good.

The Nature of Normal Capacity

In approaching this subject of normal capacity, we should bear in mind that it is not merely a reflection of past history. It must take into consideration many other factors which will be brought out throughout this discussion. Neither is it merely a function of productive capacity. It must be defined in terms of ability to produce, sell, and collect.

A great deal of consideration must be given to the factor of public demand, and this requirement makes it difficult for any one concern to decide entirely for itself what may be considered

normal. Generally, and certainly from the broad economic and constructive viewpoint, the experience of the industry as a whole, as well as that of an individual concern, should be taken into account. It is a comparatively simple matter to determine the maximum and normal productive capacities at any particular plant, but that does not necessarily mean that the sales department can sell all of such capacity in the open markets, and that the collection department can collect for all such materials sold. It would be unwise for any concern to consider as normal its full capacity, if all other concerns within the same industry did likewise and the combined output of the industry was considerably in excess of the amount to be consumed by the public. In such a situation, burden costs and subsequent selling prices would naturally be lower than would actually exist, with a resulting effect upon profits. A good illustration of this principle may be taken from the coal mining or petroleum industries. Each of these industries is capable of producing far in excess of public needs, and unless burden costs are predicted upon the ability of the public to consume the product produced, disastrous results might be obtained.

Accordingly before a normal capacity standard is established for burden purposes, each of these three principal factors should be given proper consideration. If there is not sufficient information available to determine the capacity of the public to consume your output, or if yours is a jobbing industry not directly connected with public needs, thereby making the market analysis difficult, you can at least consider as normal the average for a number of years, adjusted to known or anticipated future conditions. This may be somewhat unscientific in the light of previous statements, but if you have proven that over a period of years you can successfully operate your business on such a volume, you are justified in accepting such an average, properly adjusted to current conditions, as a normal.

It should be the joint responsibility of the accountant and management to determine this normal capacity. Too often, so-called normal capacity completely ignores the economic aspect and takes into consideration only the peak capacity of the particular plant in question. Sometimes this is advisable, but in the majority of cases and certainly under normal conditions, a broader economic

point of view must be considered. Only by the accountant and management working together may the proper solution be found. Included in management should be the executives concerned with factory management, purchasing, sales, and finance. The final decision naturally rests with the management, but the accountant should be part of that management and should consult with and advise the management in this connection.

Setting Normal Capacity

Normal capacity should be determined first for the business as a whole and then broken down by plants and departments, depending upon circumstances. In a purely jobbing industry, each department could be treated as a business by itself and normal capacity established accordingly.

This capacity may then be stated in terms of labor hours, machine hours, production units, sales value, tonnage, etc., depending upon the nature of the business. Each industry has its own measuring unit. In the automobile industry, the unit is car sales; in petroleum, it might be gallons, barrels, or tons; in the steel industry, it is tons; in the railroad industry, it is passenger mile or tonnage mile; in banking, it is a work unit; in department stores, it would be sales value, etc.

Uses of Normal Capacity

This normal capacity should be the foundation for burden accounting. Burden should be estimated or determined on the normal capacity volume, and all comparisons of actual overhead should be made to this normal, in addition to any other comparisons which may be desired. It is not sufficient that burden costs be compared with previous months or previous periods only. That type of comparison is essential, but it is also necessary to know how current burden figures compared with the predetermined figures using normal production as a basis.

All cost estimating should include burden rates established on the normal volume of business. Cost estimates are normally the foundation of selling prices, and unless normal capacity is used as a basis, the price structure must necessarily be on a false foundation that will tend eventually to destroy industry.

In establishing budgets, first consideration should be given to the

normal output of the plant, and all figures should be established on that basis. This will be used as a jumping-off point to determine budgets for the expected volume for ensuing periods. There may be a vast difference between normal volume and expected volume, but if the normal is to become the basis or foundation upon which estimating and selling prices are to be established, it should also be the foundation for the budget to control cost for an expected volume. Naturally, adjustment will have to be made to meet anticipated conditions.

The control of burden as has been brought out has a definite relation to normal capacity; in other words, normal capacity is the starting point and all costs should be controlled as nearly as possible to that normal capacity, except for conditions which are warranted and which can be reconciled to actual costs.

Having now determined the normal capacity and the normal burden which is anticipated for such normal capacity, we are in a position to determine the normal burden rate to be used for all costing purposes. This is a rate which, during a period of normal capacity production and normal expense, will absorb all the burden expense of that period. Again it must be pointed out that this normal production does not mean possible production. Neither does it necessarily mean possible production less allowances for repairs and other ordinary hindrances to continuous operation. A coal mine is a good illustration of this point. Consideration must be given not only to the amount of coal that can be produced in the mine, but also to the amount that can be loaded into railroad cars, sold, delivered, and the money collected, not just in the winter when coal is required, but also in summer. In other words, the consumer needs must be considered.

Advantages of Normal Capacity Concept

The advantages of normal capacity conception are many. In the first place, it tends to eliminate fluctuation in costs due to volume factor. In addition, its use tends to prevent overexpansion of plant capacity. This is particularly true when the broader economic viewpoint is taken and the capacity of the public to consume the output is considered as well as the ability of the firm to produce. We already have too many industries wherein the ability of the public to consume the production has been ignored,

resulting in a tremendous overexpansion of plant capacity. This is an economic loss to the general public and a direct loss to the owners of the businesses involved and is inexcusable in most cases. Such an analysis will disclose excess and idle equipment in many factories, and will enable management to plan production over longer periods, thereby reducing costs and releasing additional equipment for other uses. This excess equipment is very costly and has oftentimes been the direct cause of business failures. It is a farily safe assumption that a large percentage of American business firms could dispose of substantial quantities of equipment if peaks and valleys in production could be leveled off. This can be done, at least partially, through a proper and complete analysis of normal capacity and normal public needs.

Normal Burden Rates and the Price Structure

By using this normal volume which reflects normal burden over a period of years, we automatically establish sound cost estimates which, in turn, enable industry to establish and maintain a sound price structure. This will tend to eliminate cutthroat and ignorant competition. All of this tends to maintain a more consistent level of production and employment and adds greatly to the welfare of the people.

By establishing costs on the basis of this normal volume and thereby obtaining more scientific costs with due consideration to long-term cost trends, the management is in a position to be more selective in obtaining business for their plant. This will also tend in the long run to stabilize profits and employment. In connection with this whole question of normal capacity and its effect upon costs and selling prices, it must be remembered that when prices are either arbitrarily reduced or, through ignorance of normal capacity and normal burden, are placed at a point below the cost at which the product may be produced over a period of years, the concern responsible for the price cut has not only reduced its own profits but has also destroyed a profitable line for all industry. It has created a situation wherein it sometimes becomes impossible to increase the price structure even after business has again reached normal. This is a concept which is too often ignored by those who are responsible for the setting of selling price.

The alternatives for normal capacity are: (1) guess-work; (2) considering only the *peak capacity* to produce, ignoring the ability to sell and collect; and (3) considering only *normal capacity* to produce, ignoring the ability to sell and collect.

Idle and Excess Capacity Costs

Idle equipment and excess plant capacity may be safely divided into two classes. The costs incidental to equipment which is necessary as a standby to take care of peak production months and is not needed in off-seasons are chargeable to cost of production and should be taken into consideration when establishing normal overheads; on the other hand, all costs incidental to idle equipment which is not required to produce any of the potential business are not a part of the cost of production and should not enter into such costs in any form. The cost of producing any given part for a factory does not rise simply because certain equipment is lying idle. Such idleness does not affect the cost of any product being made. Rather it should be treated as a cost of a product not made, or as an idle capacity cost, and carried to profit and loss. If this idle capacity is due to peculiarity of the business and not due to temporary conditions, then of course such costs become a part of the cost of production and should be reflected in the long-range price structure. Normal burden rates should not include any expense of inefficient operation of any nature, including equipment not required for the business. Otherwise, such inefficiency may gradually force quotations beyond market possibilities, which are in the last analyses oftentimes determined by the more efficient factories.

The analysis of burden variances should disclose the variances due to volume, management decision, and other extraordinary items. These reports should be presented to management in the form in which management can best use them, and that will be determined according to the character of management. Some managers prefer such variances to be shown in dollars, others in percentages. Some prefer charts, graphs, or other methods. This is something that will have to be determined in your own particular organization.

Disposition of Unabsorbed Burden

There are several methods used to dispose of unabsorbed burden. Some concerns include it in the inventory as a part of production costs. This is not good policy. If normal burden rates have been properly estabilshed, they represent all the burden costs that the production should be charged with. They represent all the burden costs that the sales department can sell. Any unabsorbed portion is due to factors other than production. As such, it is entitled to no place in the inventory for it adds nothing to the market value of such inventory. It should be disposed of in some other manner.

Some concerns charge such unabsorbed burden to a reserve account on the assumption that over a period of time it will balance itself out, and no further disposition will be necessary. Theoretically, this is what would happen if the normal burden rates were absolutely accurate and there were no variances over a period of time. Actually, however, no burden rate can be established that accurately and there will be over- or under-absorbed burden which will have to be charged to profit and loss account. Accordingly, the use of such a reserve might create quite a false balance sheet and operating statement.

A more conservative method would be to use the normal burden rate to cost sales and value inventories. Any resulting unabsorbed burden will be charged directly to cost of sales as a specific item. Such a method will reflect a proper balance sheet at all times, and will show "Unabsorbed Burden" as a specific item in the profit and loss statement.

Revising Normal for the Postwar Period

Up to this point in the discussion, I have been proceeding as though no war existed and each concern were in a position to control its own destiny (at least to some extent). That is the position we hope to reach at the conclusion of the war, and it is, therefore, only reasonable that we approach our problem from that angle. However, the armament program will develop within each one of your factories a dangerous pitfall with respect to burden, for the tremendous volume created thereby will tend to reduce the burden rates within each of your plants, and the natural tendency on the part of your managements will be to use the lower burden

rates to establish selling prices for all products. This will be a dangerous practice because such a burden will be based upon a false assumption, namely, that the volume of business you are doing is normal and can be expected to continue. Such is not the case. Immediately, at the close of the war, there will be a drastic falling off of business, and when that happens your burden rates will immediately rise. If, in the meantime, your costs have been predicated upon the lower burden rate, and if your selling prices have been predicated upon such cost, you may be faced with the possibility of selling all, or at least part, of your products at a price below the actual cost of production. In a chaotic market, which may exist some time after the close of the war, you might find it difficult to adjust your price to the proper levels, and the result could be disastrous for your concern. If, however, your burden rates during this entire period have been predicated upon a reasonably accurate analysis of normal capacity and if you maintain all of your commercial business on that basis, you will not need to make adjustments in your prices, in so far as burden is concerned, when this time arrives.

Postwar Depreciation Problems

During this period of high war production most concerns have procured substantial quantities of machinery and plant facilities which may or may not be used in ordinary peacetime business. Special wartime depreciation has been charged to cost of operations not only for these special wartime facilities but in many instances for regular equipment used normally for peacetime business. Hence, at the close of the war, there may be a considerable amount of machinery and plant facilities fully depreciated on the books, but containing many years of useful life. This will greatly magnify a problem which has always been with us to some degree but requires the same treatment as outlined earlier in discussing idle and excess plant capacity.

Normal depreciation should be charged to operating costs for every piece of equipment used in production, even though such equipment may be fully depreciated on the books. Every unit of production should be charged with its proper proportion of equipment costs (depreciation, etc.), regardless of the value appearing on the books for such equipment. If current production is not

charged with such costs, the selling prices (which are presumably predicated upon cost of production) will be artificially deflated with the result that there will be established in the minds of your customers a false conception of the proper price levels. As such equipment wears out and is replaced, there will automatically be charged to the cost of production, depreciation, and other charges on the new equipment, thereby creating a steadily rising price structure which will be difficult to explain. If, however, during this entire period, the normal depreciation on such equipment has been charged into cost of production, and if all selling prices have provided for such depreciation, there need be no adjustment in the selling price structure when new equipment is procured, and the customer relationship need not be disturbed in any way.

All of the foregoing discussion indicates quite clearly that a correct analysis of normal capacity and normal burden and a proper application of such findings can be distinctly helpful to management in establishing sound management and sales policies.

CASE HISTORY OF TWENTY-SEVEN GOVERNMENT AUDITS

By Clark L. Simpson,
Chief, Audit Section, Cincinnati Ordnance District, Cincinnati, Ohio.

IN connection with district auditors' meetings I recently assigned an auditor to analyze the results obtained in twenty-seven audits with the view to pointing out the more frequent errors made by the contractors in the presentation of their claims. This assignment was handled by Private Kenneth Stringer, Certified Public Accountant, an enlisted man on my staff. (At the present time various branches of the War Department are using technically qualified servicemen as auditors. Most of these men have had years of experience in auditing and accounting and have proven to be the answer to the vital manpower shortage in accounting personnel.)

The twenty-seven audits consisted of 15 termination claims, 7 equipment and cost audits, and 5 redetermination-of-price audits. Using the composite amount originally claimed and the amount as recommended for approval, there was a recommended reduction as a result of the audit of approximately 14 per cent.

One Hundred Seventeen Adjustments

There were 117 audit adjustments, consisting of 16 adjustments in direct materials, 8 adjustments in direct labor, 15 adjustments in factory overhead, 18 adjustments in tools and fixtures, 6 adjustments in administrative expense, 2 adjustments in post-termination expense, 9 adjustments in the profit calculation, and 43 adjustments of other charges.

Material Adjustments

Material adjustments included two cases of cash discounts having been omitted. The Government contends that a cash discount is a reduction in price and that the actual cost to the contractor is the net after allowance of discount. In three cases, materials charged to the contracts were purchased for other contracts and were not applicable in any manner to the contract in question. One test of the acceptability of the ma-

terial charge is its applicability to the specific contract, unless it be a common item, in which case, it is given special handling. In four cases there were errors in pricing on the part of the contractor. In three cases the contractor had overstated the inventory units and such overstatement had to be removed from the charge. In one case the contractor had presented a claim for material which exceeded the requirements for completion of the contract. It is, of course, unreasonable to expect payment for material in excess of the amount which would be required to complete the contract. In a case where the contractor had filed his claim on the total cost method, he had failed to allow production scrap as a credit against such cost. In another instance the contractor had improperly classified a subject claim as a material cost. In another instance the contractor had given the Government a duplicate credit for a salvage disposal and this matter was corrected.

Labor Adjustments

The eight direct labor adjustments consisted of one overcharge due to an incorrect hourly rate being used, one duplication of a labor charge, one case of replacement parts being charged as direct labor, two cases of labor being included in the claim which had no application to the contract, two miscellaneous adjustments, and one case of a labor charge being duplicated by being included both as direct and indirect labor.

Overhead Adjustments

In the case of factory overhead adjustments one contractor had included depreciation on the appreciation of fixed assets. Another had considered state income tax as a production cost, which is, of course, an improper classification. Quite a few of the factory overhead adjustments consisted of correcting errors in the mathematical distribution. In some cases also the contractor had accrued expenses. As of the date of the audit it was possible to examine the actual expenses and correct such accruals to actual. By using standard overhead distribution a number of contractors had overapplied their overhead, and adjustments were made by the auditor to cover such variations. In a few cases the contractors had used an incorrect principle in determining their method of distribution

and these were corrected. A number of contractors made haphazard estimates of the overhead amount, and the auditor made corrections using a more technical basis for distribution. Quite a few factory overhead adjustments were made changing the amounts, due only to a change in the direct labor dollars amount on which such distribution was made.

Special Tools

Contractors claims for cost of special tools were found to be inflated due, in one case, to cash discount not having been deducted; in three cases the tooling was not applicable to the contract on which the claim was being made; in one case the tools were not physically available although the contractor had included them in his claim; in four cases where the tools were manufactured by the contractor, there were errors in the direct labor charge; and in four cases the contractor made a charge against the contract for the original cost of the tools failing to amortize a proper cost over the units actually produced. There were two miscellaneous adjustments, and three cases in which the overhead was found to be inflated.

General and Administration Expense

Administration expense adjustments consisted mostly of substitution of a scientific approach method for a haphazard estimate of the applicable expenses. There were also certain duplications and mathematical errors which required adjustments.

Post-Termination Expense

The post-termination expense adjustments recommended by the auditor consisted entirely of recommended reductions in the percentage to be allowed for handling charges on materials sold by the contractors. Such contractors had maintained no records of actual cost and had asked for percentage of cost allowance which appeared to be inflated.

Profit

An auditor in termination accounting never makes actual audit adjustments with regard to profit. He does, however, make recommendations which are considered by the contracting officer or the

negotiator in the settlement of the profit problem. In one case a prime contractor had included in his claim all of the profit which he would have realized had his production continued until completion of the contract. Our audit report recommended that profit be allowed at the indicated rate on the work which had actually been performed and on the limited formula basis for the unprocessed materials. In another case, however, the contractor's own records clearly indicated that he was operating at a loss. In this case the auditor recommended that since the contractor was operating at a loss, it was doubtful if any profit allowance should be made.

Miscellaneous

Other claim adjustments which were included in the 117 referred to at the start of this article were distributed over a wide field. One of these consisted of the elimination of charges for idle plant facilities. Under governmental accounting procedure, idle plant facilities cannot be charged to production cost or be recognized in a termination claim.

Many contractors include in their production cost and termination charges a charge-off of assets at a 20 per cent rate authorized by the necessity certificate procedure. Amortization under the necessity certificate procedure is entirely a tax measure and is not allowable as a production cost. In determining production costs, the write-off of assets is limited to the normal depreciation allowed by the Internal Revenue Bureau or Bulletin F, or sufficiently expedited depreciation to provide for extra shifts being operated.

Many contractors attempt to file claim for overhead charges continuing beyond the termination date. Under termination procedure the costs of production are discontinued as of the date of cancellation, with only post-termination expenses to be allowed thereafter. Even such post-termination expenses require the approval of the contracting officer.

In many cases contractors include contingency reserves as costs. In too many cases these contingencies are highly fanciful and not only never occur but have little likelihood or probabiliy of occurring. Reserves for contingencies are generally eliminated in arriving at actual costs.

Many contractors after the date of termination attempt to charge the Government for salaries and payroll beyond the termination date, claiming they have a moral obligation to their employees which the Government, having cancelled their contract, should assume. Usually such contractors have no established policy of recognizing such moral obligation to its employees and no contractual liability. Merely because the Government has cancelled the contract, such a benevolent program has come into existence. The Government does not recognize such a claim.

In every case where a contractor includes in his claim a charge for reconverting his plant for peacetime production, such charge is of necessity disallowed. There may be moral argument in favor of allowing such an item, but it is strictly forbidden by the regulations.

Summarization

It was the consensus of opinion of my audit staff that the errors disclosed in the examination of these twenty-seven cases were symbolic of the actual errors in the district as a whole. There are few errors of principle which have been reflected in any of the district activities which did not show up at least in a minor degree in the twenty-seven cases studied. This paper has been written with the thought in mind that perhaps if the contractors are informed of the types of errors which have proven to be most frequent in our experience, they may be better able to side-step making such errors. At the present time, under policy developed by the Secretary of War and existing through all the services, contractors are being educated as to government requirements and termination procedures. Few facts are ever furnished termination auditors which are not made available to the personnel of the contractor. This has had the result of placing the contractor in the very excellent position of being able to anticipate requirements of the Government. With the contractor and the Government operating as a team in the termination of contracts, the problem of speeding up termination settlements becomes much less acute.